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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,895	12/02/2003	Kunihiko Ishizaki	46130	2427

1609 7590 05/09/2006

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EXAMINER
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ASINOVSKY, OLGA

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/724,895	<b>Applicant(s)</b> ISHIZAKI ET AL.	
	<b>Examiner</b> Olga Asinovsky	<b>Art Unit</b> 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 11-19 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/21/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Applicants amend independent claim 1 and cancel claims 7-10.

#### ***Response to Amendment***

Upon the present amendment all claims 2-6 and the new claims 11-19 are depending on the process claim 1. All claims disclose a process for continuous production of a water-absorbent resin.

New search has been made.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 11-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 0 885 917 A2 .

Reference EP 0 885 917 (hereinafter EP'917) has been discussed in the office action mailed on 12/06/2005 under 35 U.S.C. 102(b) rejection.

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Upon the amendment, the claimed invention is a process for continuous production of a water-absorbent resin product, wherein the water-absorbent resin comes being continuously produced via a classification step and a surface-modification step following a step of polymerization a monomer and a step of drying, wherein the water-absorbent resin has a mass-average particle diameter of 200 to 700microns (according to JIS-standardizing sieves) after the classification, and contains particles of not smaller than 1,000 microns (according to JIS-standardized sieves) in the range of less than 5.0 mass %, which comprises the following steps of: (A) measuring a water-absorbent resin; (B) separating a predetermined amount of water-absorbent resin (a) from the water-absorbent resin that comes being continuously produced specified in the claim; and (C) mixing at least a portion of the of the separated predetermined amount of water-absorbent resin (a) into a water-absorbent resin that comes being continuously produced via a classification step and/or a surface-modifying step on the same or another production line.

EP'917 discloses a process for producing a water-absorbent resin granule. A water-absorbent resin is produced by polymerizing the hydrophilic monomers preferably comprising acrylic acid by aqueous solution polymerization, page 5, lines 1-58. The water-absorbent resin is in a particulate form and the size of the water-absorbent resin is not especially limited. The average particle diameter of the water-absorbent resin (primary particle) is more preferably 200 to 600 microns and said water-absorbent resin primary particle contains substantially no particle larger than 1,000 microns, page 6,

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lines 34-46. The water-absorbent resin composition was classified into 300 to 850 microns with a JIS standard sieve, page 23, line 17. The polymerized monomer and particle size distribution are readable in the present claims 1, 6 and 11. The water-absorbent resin powder was classified with a sieve of the mesh size of 850 microns and 150 microns, page 24, lines 6-13. The resin powder of 850 microns to 150 microns is readable in the new claim 11. The particle size distribution is the same that in the present claims. The resultant finely-particulated hydrogel polymer was spread on a wire net with a mesh size of 300 microns (equivalent to 50 mesh designation) and then dried, and then classified with a mesh of 850 microns, page 24, lines 4-6. The water-absorbent resin powder showed a water absorption capacity of 42 g/g and a water-soluble content of 10 % by weight, page 24, lines 12-13; the example 1-1 (particle mixture) at page 27 shows a water absorption capacity (g/g) is 33 and absorption capacity under load (g/g) is 27, for the present claims 1 and 5. Thus, EP'917 discloses particle size distribution and a predetermined property. The step (A) measuring a water-absorbent resin by its predetermined property and/or predetermined component content after the classification step and/or a surface-modifying step is inherent and readable in EP'917. The claimed step (B) for separating a predetermined amount of water-absorbent resin (a) is readable in EP'917 at page 16, lines 28-30 and page 20, lines 50-58. EP'917 discloses pulverizing step and then classified into a desired objective particles. Any definite value of the predetermined property is readable in the present claim 1. EP'917 discloses a step of supplying a water-absorbent resin powder and an aqueous liquid into a continuous extrusion mixer and mixing, page 4, lines 29-

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34; page 7, lines 16-17 and 51-53. Therefore, EP'917 does disclose the claimed step (C) mixing at least portion of the water-absorbent resin powder and the aqueous liquid wherein the aqueous liquid is the binder, page 7, line 52. Also, EP'917 discloses that for the purpose of enhancing the absorption speed/capacity the particles are surface-crosslinked=surface-modified, page 16, lines 35-58. The water-absorbent resin may be a self-crosslinking type which does not need any crosslinking agent, but preferable a crosslinking agent can be used, page 5, lines 52-53 and page 6, lines 1-20. The crosslinking agents such as ethylene glycol, polyethylene glycol or N,N-methylenebis(meth)acrylamide, page 6, lines 3 and 7, can be used for producing a surface-crosslinking property, page 20, line 58 and page 21, lines 1-15. The surface-modifying step is readable in the present claim 4. Since the water-absorbent resin can be formed from polymerizing acrylic acid and the crosslinking agent can be ethylene glycol, polyethylene glycol or N,N-methylenebis(meth)acrylamide, thus the dehydration esterification and/or dehydration amidation step is inherent in EP'917 for the present claim 14. EP'917 does disclose the claimed step (A), (B) and (C). The claimed process for continuous production of a water-absorbent resin is fully anticipated by the disclosure of EP'917.

EP'917 does not use term "production line" in the present claim 2. However, the "production line" is depending on the technical equipment. It is reasonable to presume that a process for producing a water-absorbent resin granule is carried out in the production line since EP'917 discloses a continuous granulation process when the

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water-absorbent resin powder and the aqueous liquid are supplied into the continuous extrusion mixer and mixed therein, page 20, lines 35-37. It is a burden on the applicants to provide the difference in order to overcome this rejection under *In re Fitzgerald* 205 USPQ 594.

EP'917 does not disclose the production of the water-absorbent resin per line being not less than 20 t (metric tons)/day, for the new claim 13. It is reasonable to presume that a production per line/per day can be obtained in EP'917 because EP'917 discloses the same process for producing a water-absorbent resin granule, and because the production per line/per day is depending on the technical equipment. It is a burden on the applicants to provide the difference in order to overcome this rejection under *In re Fitzgerald* 205 USPQ 594.

3. Claims 1-6 and 11-15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dairoku et al U.S. Patent 6,228,930.

Reference Patent 6,228,930 belongs to the patent family to EP 0 885 917. All discussions to EP'917 in the paragraph 2 above are adequately applied to Patent 6,228,930.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP0 885 917 A2 as applied to claim 1-6 and 11-16 above as individual reference or further in view of Uenaka et al U.S. Patent 5,468,813 or Imahashi U.S. Patent 6,107,385.

In addition to the discussion in the paragraph 2 above, EP'917 discloses the absorption capacity being 33 g/g and absorption capacity under load being 27 g/g, page 27, line 30, example 1-1. The water-absorbent resin composition was classified into 300 to 850 microns with a JIS standard sieve, page 23, line 17. A mass-average particle diameter of 300 to 600 microns is readable in a pulverized water-absorbent resin powder (A) with an average particle diameter of 300 microns in EP'917, page 24, line 7.

The difference between the present claims 16-17 and EP'917 is that the amount of the water-absorbent resin (a) separated in the step (B) of not larger than 10 mass % is mixed with the water-absorbent resin. It would have been obvious to one of ordinary skill in the art to consider that by the controlled process steps for producing a water-absorbent resin in EP'917 the desired content of the resin particle in a separated step (B) can be selected since it is required only ordinary skill of a worker in the art.

Also, the difference is that EP'917 discloses the particle smaller than 150 microns being presence in the amount of 15% by weight, page 24, line 8, whereas the present claim 18 (5) requires a fine powder (smaller than 150 microns) content of less than 5.0 mass %.



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It would have been obvious to one of ordinary skill in the art to modify a process for producing a water-absorbent resin powder in EP'917 such that an amount of the fine powder (smaller than 150 microns) can be reduced to an amount of less than 5.0 mass % since the resulting dry granule can be pulverized and classified to the desired particle diameter size and, thereby obtain the claimed requirement.

EP'917 does not disclose the technique for measuring particle diameters by a laser diffraction scattering method.

Uenaka'813 and Imahashi'385 disclose a laser diffraction scattering method for measuring a particle diameter of 0.3 to microns in Uenaka, col. 2, lines 35-37 and of 0.4 to 2 microns in Imahashi, col. 4, lines 4-5.

It would have been obvious to one of ordinary skill in the art to use a laser diffraction scattering method as disclose in Uenaka invention or Imahashi for measuring the particle diameter of water-absorbent resin granule in EP'917 because said laser diffraction scattering method can be used for measuring a particle diameter of any organic or inorganic particles.

6. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dairoku et al U.S. Patent 6,228,930 as applied to claims 1-6 and 11-15 above taken as individual reference or further in view of Uenaka et al U.S. Patent 5,468,813 or Imahashi U.S. Patent 6,107,385.

Reference Patent 6,228,930 to Dairoku belongs to the patent family to EP 0 885 917.

All discussions in the paragraphs 2-4 above to EP'917 are adequately applied to Patent 6,228,930.

### ***Response to Arguments***

Applicant's arguments filed 03/06/2006 have been fully considered but they are not persuasive. Argument is that EP'917 does not disclose the claimed steps (A), (B) and (C). Specifically, the applicants argue that EP'917 does not disclose classification step and a step of mixing of the water-absorbent resin (a) with a water-absorbent resin that comes being continuously produced via a classification step and/or a surface-modifying step being carried out in the production line of claim 2 (Remarks page 11). EP'917 has been discussed above in detail. The arguments are not persuasive. EP'917 does disclose the claimed steps (A), (B) and (C). Any production line is readable in the present claim 2. "A production line" is depending on the technical equipment. The production per line/per day is inherent in EP'917 invention. It is a burden on the applicants to provide the difference in order to overcome this rejection under *In re Fitzgerald* 205 USPQ 594.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The closest referent U.S. Patent 6,228,930 belongs to the family patent to EP 0885917. References have been discussed above.


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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

  
James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga Asinovsky  
Examiner  
Art Unit 1711

*O. A.*

May 03, 2006